AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-2. (Canceled).

3. (Previously Presented) A sensor chip, comprising:

a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes;

counter electrodes generating an electric field for stretching the nucleotide probes in the reaction region;

scanning electrodes arrayed in the reaction region; and

dielectrophoresis means for migrating the stretched nucleotide probes toward a pair of adjacent electrodes of the scanning electrodes by a non-uniform electric field generated by applying a voltage between the adjacent electrodes, wherein the adjacent electrodes are bridged by nucleotide probes immobilized between the adjacent electrodes.

4. (Previously Presented) The sensor chip according to claim 3, wherein the target nucleotide sequences are hybridized with the nucleotide probes immobilized between the adjacent electrodes.

5. (Original) The sensor chip according to claim 3, wherein the scanning electrodes have circular or polygonal ends.

6. (Previously Presented) The sensor chip according to claim 3, wherein the counter electrodes are disposed so as to oppose each other and be in parallel with each other.

7. (Previously Presented) The sensor chip according to claim 3, wherein the non-uniform electric field includes an alternating current electric field.

8. (Currently Amended) A sensor chip, comprising:

a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes;

a common electrode disposed in the reaction region;

scanning electrodes aligned in parallel in the reaction region; and

an electric field generator energizing the common electrode and at least one of the scanning electrodes by sequentially applying a voltage between the common electrode and the energized scanning electrode to generate an electric field in the reaction region, the nucleotide probes migrating toward the energized scanning electrode in response to the electric field, wherein the energized scanning electrode and a second scanning electrode adjacent to the energized scanning electrode are bridged

by nucleotide probes immobilized between the energized scanning electrode and the second scanning electrode.

9. (Previously Presented) The sensor chip according to claim 8, wherein the scanning electrodes are aligned in two lines, and an end of the scanning electrodes in one line opposes an end of the scanning electrodes in the other line.

10. (Previously Presented) The sensor chip according to claim 9, wherein the opposed ends of the scanning electrodes are separated by a distance, the distance increasing stepwise in a direction that the voltage is sequentially applied.

11. (Previously Presented) The sensor chip according to claim 8, wherein the target nucleotide sequences in a stretched form are hybridized with the nucleotide probes immobilized between the energized scanning electrode and the second scanning electrode.

12. (Original) The sensor chip according to claim 8, wherein the scanning electrodes have circular or polygonal ends.

13. (Previously Presented) The sensor chip according to claim 8, wherein the electric field generated in the reaction region includes an alternating current electric field.

14. (Previously Presented) A sensor chip, comprising:

a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes;

first scanning electrodes arrayed in the reaction region;

second scanning electrodes arrayed in the reaction region, an end of the second scanning electrodes opposing a respective end of the first scanning electrodes; and

an electric field generator applying a voltage between adjacent electrodes of the first scanning electrodes and between adjacent electrodes of the second scanning electrodes to energize the adjacent electrodes of the first scanning electrodes and the adjacent electrodes of the second scanning electrodes and to form an electric field in the reaction region, a first group of the nucleotide probes migrating toward the energized first scanning electrodes by dielectrophoresis, and a second group of the nucleotide probes migrating toward the energized second scanning electrodes by dielectrophoresis, wherein the adjacent electrodes of the first scanning electrodes are bridged by the first group of the nucleotide probes immobilized between the adjacent electrodes of the first scanning electrodes, and the adjacent electrodes of the second scanning electrodes are bridged by the second group of the nucleotide probes immobilized between the adjacent electrodes of the second scanning electrodes.

15. (Previously Presented) The sensor chip according to claim 14, wherein the target nucleotide sequences are hybridized with the first group of the nucleotide probes and the second group of the nucleotide probes respectively immobilized between the first scanning electrodes and between the second scanning electrodes.

16. (Original) The sensor chip according to claim 14, wherein the first scanning electrodes and the second scanning electrodes have circular or polygonal ends.

17. (Previously Presented) The sensor chip according to claim 14, wherein the electric field includes an alternating current electric field.

18. (Currently Amendment) A sensor chip, comprising:

a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes;

a common electrode disposed in the reaction region;

scanning electrodes arrayed in the reaction region, an end of the scanning electrodes opposing the common electrode;

an electric field generator energizing the scanning electrodes by applying a voltage between the common electrode and at least one of the scanning electrodes to form an electric field in the reaction region, the nucleotide probes migrating toward the energized scanning electrode while the nucleotide probes are being stretched by the electric field; and

means for immobilizing the stretched nucleotide probes between the energized scanning electrode and a second scanning electrode, wherein the energized scanning electrode and the second scanning electrode <u>adjacent to the energized scanning electrode</u> are bridged by the stretched nucleotide probes.

19. (Previously Presented) The sensor chip according to claim 18, wherein the target nucleotide sequences are hybridized with the nucleotide probes immobilized between the energized scanning electrode and the second scanning electrode by migrating the stretched target nucleotide sequences toward the energized scanning electrodes using dielectrophoresis.

20. (Original) The sensor chip according to claim 18, wherein the scanning electrodes have circular or polygonal ends.

21. (Previously Presented) The sensor chip according to claim 18, wherein the electric field includes an alternating current electric field.

22. (Withdrawn) A method of hybridization using a hybridization detector comprising a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes and scanning electrodes arrayed in the reaction region, the method comprising the steps of:

stretching the nucleotide probes in the reaction region by an electric field and immobilizing the stretched nucleotide probes on the scanning electrodes by dielectrophoresis; and

hybridizing the target nucleotide sequences to the immobilized nucleotide probes.

23. (Withdrawn) The method of hybridization according to claim 22, the method further comprising the steps of:

immobilizing first ends of the nucleotide probes on a selected single scanning electrode and subsequently immobilizing second ends of the nucleotide probes on the adjacent scanning electrode so that the nucleotide probes bridge the adjacent scanning electrodes.

24. (Currently Amended) A hybridization detector, comprising:

a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes;

counter electrodes disposed in the reaction region, each of the counter electrodes having a first surface facing the reaction region; and

floating-potential electrodes dispersed in a matrix layout between the counter electrodes, each of the floating-potential electrodes having a second surface facing the reaction region, wherein the second surface is narrower than the first surface.

25. (Original) The hybridization detector of claim 24, wherein the floating-potential electrodes have a shape being capable of generating a non-uniform electric field.

26. (Previously Presented) The hybridization detector according to claim 24, wherein surfaces of the floating-potential electrodes are smaller than that of the counter electrodes.

27. (Original) The hybridization detector according to claim 24, wherein the surfaces of the floating-potential electrodes are treated for immobilizing the nucleotides probes.

28. (Original) The hybridization detector according to claim 24, wherein the counter electrodes are aligned in parallel with each other.

29. (Previously Presented) The hybridization detector according to claim 25, wherein the non-uniform electric field generated by the counter electrodes includes an alternating electric field.

30. (Previously Presented) A sensor chip comprising the hybridization detector of claim 24.

31. (Withdrawn) A method of hybridization using a hybridization detector comprising a reaction region for hybridization between nucleotide probes and target nucleotide sequences having a base sequence complementary to the nucleotide probes and counter electrodes disposed in the reaction region and a plurality of floating-potential electrodes aligned between the counter electrodes, the method comprising the steps of:

stretching the nucleotide probes in the reaction region by applying a voltage to the counter electrodes and immobilizing the stretched nucleotide probes on the surfaces of the floating-potential electrodes by dielectrophoresis in non-uniform electric fields

generated at the counter electrodes and at the partial surfaces of the floating-potential electrodes; and

stretching the target nucleotide sequences in the reaction region by applying a voltage to the counter electrodes, and hybridizing the stretched target nucleotide sequences to the stretched nucleotide probes immobilized on the surfaces of the floating-potential electrodes.